created by the tax credits did help to bring about passage of the whole act.

The Preservation Tax Incentives program, more than any other factor, has changed the way that historic buildings are restored, stabilized, and rehabilitated. Simply put, it has changed the way that Americans think about preservation. For example, in Wisconsin, prior to 1980, masonry repointing was carried out with power saws and Portland cement. Building cleaning was synonymous with sandblasting. Brick buildings were "waterproofed" with silicon which accelerated their deterioration. The pressure on developers to meet the *Secretary of the Interior's Standards for Rehabilitation* for purposes of the tax credits, has forced architects, owners, and contractors to examine their methods and adjust them to preserve both their buildings' features and materials. Unsympathetic practices, such as sandblasting, have declined, even when tax credits are not a factor.

Likewise, the building materials industry now produces materials more suited to older and historic buildings. Some improvements in products, such as better replacement windows, owe heavily to the insistence of the NPS that replacement windows replicate originals nearly exactly. To receive tax credits, owners demanded better windows and the manufacturers responded.

As much as the federal tax incentives program has promoted the rehabilitation of historic buildings, in Wisconsin it has also resulted in other positive changes. In terms of its effect on historic resources and its spin-off benefits to local governments and the private sector, the program has been enormously successful.

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Sharon C. Park

Identifying Technical Preservation Issues

Preservation Tax Incentives Projects

The federal historic Preservation Tax Incentives program constitutes the single most important generator of topics for technical assistance for historic preservation projects. During the past 20 years, issues identified during the rehabilitation of thousands of historic buildings have been brought to the attention of the Technical Preservation Services (TPS) staff of Heritage Preservation Services (HPS) in the National Park Service, and have been turned into publications such as the *Preservation Briefs, TechNotes, Standards and Guidelines*, and *Preservation Case Studies*. The NPS publications and preservation conferences are recognized by both the national as well as the international preservation community as outstanding sources of guidance and technical assistance when historic buildings are preserved.

In the passage of the National Historic Preservation Act in 1966, Congress identified the federal role in preserving historical and archeological resources of national, regional, state, and local significance. Since 1976, the Internal Revenue Code has contained incentives for the rehabilitation of income-producing historic buildings that must meet the *Secretary of the Interior's Standards for Rehabilitation*. The HPS technical assistance program identifies appropriate approaches to preserving historic buildings so that owners of qualified properties can benefit from these tax incentives.

Historic buildings can be irretrievably damaged with an incorrect application of a repair treatment or inappropriate alterations to accommodate a new use. Therefore, technical preservation issues address both material conservation and design. The challenge to preservation professionals, e.g., architects, engineers, contractors, and craftsmen, is to balance the needs for the rehabilitated building with the preservation objectives of retaining significant materials and character. There is no comprehensive program that outlines a formula for rehabilitation. Each building has unique

qualities and characteristics that must be preserved. The successful approach to rehabilitation methodically evaluates treatments and alterations in relation to the existing resource.

TPS guidance explains how technical and design issues can be addressed within a preservation context to meet the *Secretary of the Interior's Standards for Rehabilitation*. Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. For tax projects, this includes, among others, determining ways to integrate new mechanical systems without destroying the historic character of the building; finding ways to arrest the deterioration of aging materials; meeting fire, life, and safety codes; matching the visual and performance characteristics of replacement materials; and designing compatible alterations and additions.

Meeting the *Standards for Rehabilitation* requires an understanding of preservation philosophy. What makes a building historic? How is that significance embodied in the physical materials? What alterations are possible without seriously altering the historic character of the resource that made it significant?

Ten rehabilitation standards address compatible re-use of buildings and care in selecting treatments for conserving materials and integrating new systems. These standards are printed on page 35 in this *CRM* issue. When rehabilitating historic buildings, it is important to remember the following three critical principles:

- Retain significant materials through repair or limited replacement;
- Make changes that do not alter the significant historic character and integrity of the resource;

Questions about reducing lead-pain hazards in historic buildings led to technical publications on the subject. Photo courtesy National Park Service.

- Design additions that are compatible in style, materials, and scale with the historic property, that are clearly differentiated as additions and are, in effect, reversible if removed in the future.

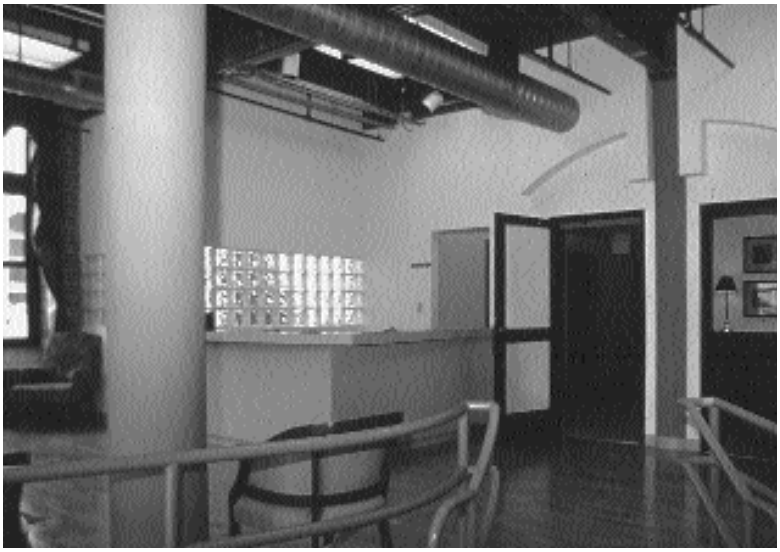
Successfully meeting all three of these criteria covers the range of issues from formulating appropriate mortar composition to engineering seismic reinforcement; from meeting the access needs of persons with disabilities to providing affordable housing in traditionally non-residential structures; from detailing a storefront to specifying a replacement assembly for a projecting parapet in a lighter weight, but appropriate, substitute material.

For rehabilitation projects where a new use is often incorporated into a building, the challenge is to incorporate new mechanical systems, to meet necessary code compliance, to incorporate a new functional plan without destroying those elements of a building that made it significant, to protect and conserve historic materials—both exterior and interior—and to preserve the building, to the extent possible within its context, on the site and within its historic district.

Difficulties may arise in rehabilitation when modern specifications and construction approaches are applied to historic buildings without considering the three criteria above. Historic materials are needlessly removed, harsh cleaning or waterproofing treatments are applied, alterations are considered that make a dramatic contemporary statement, and new additions often envelop the historic resource.

For example, in providing a lead-safe house as part of a rehabilitation, the standard for modern abatement would remove all woodwork that contains lead-based paint and replace it with modern trim, if at all. This approach causes losses of significant windows; architectural trim, particularly around windows; and woodwork elements such as banisters and staircase details. Removing them leaves no option for their preservation in later years. The rehabilitation solution is to identify the areas causing hazards, such as friction surfaces,

Technical assistance for historic preservation tax incentives projects produced publications on many topics, including the treatment of historic roofing. Photo courtesy National Park Service.



Exposed new mechanical and structural systems are compatible with industrial or warehouse conversions. Photo courtesy National Park Service.

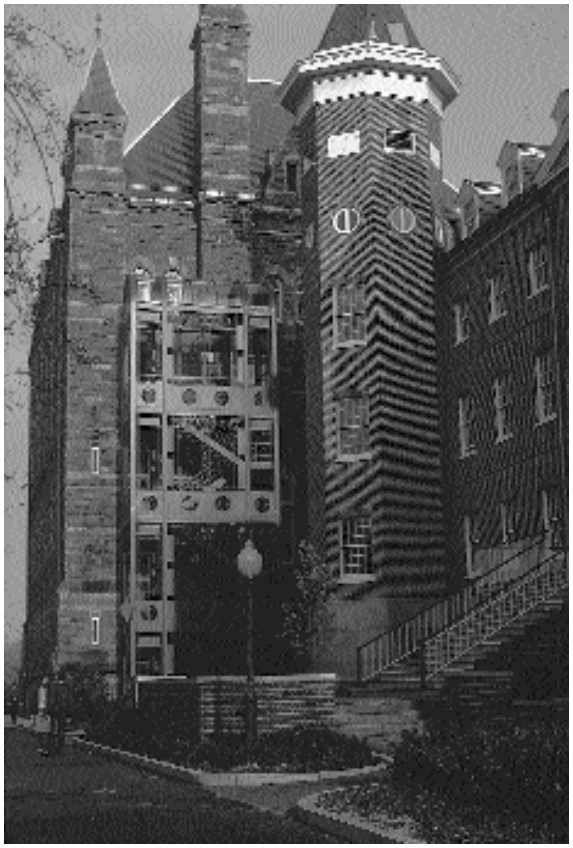
and then to strip these elements of paint prior to repainting. On a limited basis, if these elements, such as window sash, are in too poor a condition to be stripped and repaired, then replica sash should be considered. It is usually possible to strip or repair the frames and to isolate them with jamb liners. Decorative projecting woodwork, such as banisters, can be wet-sanded and repainted. If well maintained, they do not create a hazard. There are also specialized coatings that provide a more durable encapsulant paint if regulations require a long-term solution.

Materials conservation issues have been at the core of historic preservation. Finding ways to sensitively clean and maintain historic materials, using the contemporary products at hand, has lead to a number of helpful publications and symposiums. The technical assistance for tax projects has produced *Preservation Briefs* on masonry repair, roofing repair for slate, tile, and wooden shingles, adobe, terra cotta, Carrara glass, decorative and flat plaster, cast iron, stained glass, and ceramic tile.

Some manufacturers promote untested new technologies for use on historic materials. Part of the responsibility of TPS is to determine if they are appropriate for historic rehabilitation. For example, while traditional gentle chemical and washing treatments have been the standard for preservation, laser cleaning using high intensity lights to remove paint and dirt and new types of abrasives under pressure, including rubber pellets and bicarbonate of soda, are all finding their way into rehabilitation literature. They have their shortcomings, in part, because they are designed for other industries and are being applied to a broader market. These treatments have all shown to damage, through burning or pitting, aging masonry and wood substrates. Until there is a longer history of satisfactory performance, they will not be considered appropriate for historic preservation projects. The use of synthetic repair materials, including mortar patching, wood infill, and some consolidants, have been in use for over 20 years and in many cases have a successful record of performance.

Integrating new mechanical systems; meeting fire, life safety, and egress code requirements; and modifying floor plans to develop functional space requires careful planning when historic buildings are rehabilitated. Modifying transomed doors to meet fire-ratings; increasing thermal efficiency of existing windows through weather stripping; adding storm panels; and adding forced air ducts without dropping ceilings across significant window, door, or crown moldings are all technical issues that have been addressed in various publications and conferences. Retaining the historic character of buildings while making them accessible to persons with disabilities has produced guidance applicable to non-historic buildings as well. Evaluating the impact of new systems or changes to the historic building may result in hiding these new features, for example mechanical systems, or it may be determined that the boldness or simplicity of a space, such as an industrial warehouse, may accept an exposed mechanical system as a compatible design element.

Highly designed and articulated spaces generally call for hiding or minimizing the impact of new features. For example, using hidden moment



Planning and design of new spaces, such as this stair tower addition, should be compatible with the historic materials, scale, and proportion of the historic building while still being differentiated as new construction. Photo courtesy National Park Service.

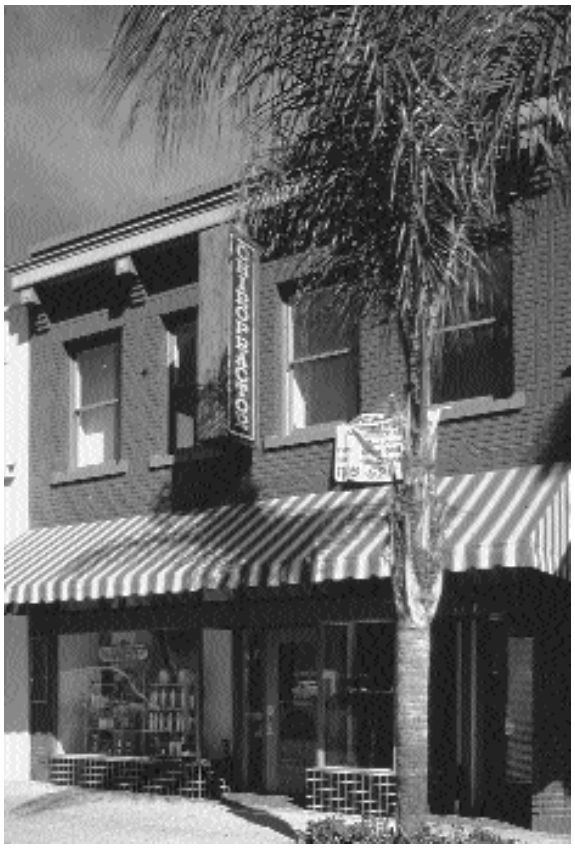
frames in a commercial storefront in a seismic zone is preferable to using heavy exposed X or K bracing that destroys the open character of a storefront. Or, retaining historic steel sash in a warehouse conversion with the development of an internal secondary window system for energy conservation and noise reduction is preferable, and often less expensive, than installing a thermal unit that adequately matches the lines, proportions, and detailing of the significant historic sash. In addition, subdividing major large public spaces, such as auditoriums, is always difficult, but many rehabilitation projects have found community uses that retain enough of these spaces to convey their historic character.

Integrating new plans and systems requires a methodology of decision-making that generated a number of the technical publications. *Preservation Briefs* on identifying architectural character, rehabilitating historic interiors, and understanding old buildings using the process of architectural investigation responded to this need. Questions about how buildings work and how new features can be incorporated led to *Briefs* on heating, cooling, and ventilating historic buildings; making buildings accessible for persons with disabilities; reducing lead-paint hazards in historic building; and controlling unwanted moisture in historic buildings.

For projects that involve new additions, the historic character of the resource being rehabilitated should not be diminished. Planning and design of these new spaces should be compatible with the historic materials, scale, and proportion of the historic building while still being differentiated as new construction. The actual design of the addition may certainly borrow details and elements of the historic building in an effort to put the new addition in context with the historic building, but the new addition should not be an exact replica of the historic building or be so historicized that it appears to be an original, integral part of the building. The historic building should not become an annex to a larger construction on the site or be enveloped within new construction. Likewise, the skyline of the building should remain in its historic context without new floors, towers, or dramatic features added as these change the proportion, scale, and detailing of most buildings. Additions are most appropriately added to secondary or rear elevations or as compatible infill construction on a site where other structures have been lost. If these additions are removed in the future, the historic building can be restored. For any major alterations or new additions on the site, it is always better to add features selectively to historic buildings rather than removing historic walls or materials that cannot be recaptured when and if the future calls for restoration.

The rehabilitation field is always seeking the development of new technologies and planning for new uses. The National Park Service currently is developing information on rehabilitating historic buildings in seismic zones and protecting those damaged by floods. In addition, because a substantial number of tax projects involve affordable housing, guidelines are being developed to help owners, architects, and developers plan for successful conversions of schools, factories, and existing residences for multi-family housing.

The technical assistance that developed over a 20-year period can only be summarized in this short essay. These have reached a broad national and international audience. This information is available through the Government Printing Office and is a useful addition to any office library for preservation professionals.



The Fillmore Commercial Buildings in Los Angeles County, California were seismically retrofitted without altering the brick facades. Photo courtesy Historic Preservation Partners for Earthquake Response.

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